

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KAORU MIKAGI

Appeal No. 1999-0239
Application No. 08/520,003

HEARD: March 22, 2001

Before HAIRSTON, DIXON, and GROSS, Administrative Patent Judges.
GROSS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 14, which are all of the claims pending in this application.

Appellant's invention relates to a semiconductor device having a metal interconnection. Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A semiconductor device having a metal interconnection, said metal interconnection including:

an insulating film provided on a semiconductor substrate via a diffusion layer;

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an interlayer contact hole formed in said insulating film;

a metal silicide layer provided at a bottom of said interlayer contact hole;

a first conductive film, comprising at least one metal film, provided on said insulating film and said interlayer contact hole;

a second conductive film provided in said interlayer contact hole;

a third conductive film provided on said first conductive film and said second conductive film; and

a fourth conductive film provided on said third conductive film.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Chen et al. (Chen)	5,371,410	Dec. 06,
1994		

Saito ¹	JP 62-241373	Oct. 22,
1987		

Claims 1 through 4, 7, 8, and 11 through 14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Saito.

¹ Our understanding of this reference is based upon a translation provided by the Translations Branch of The Patent and Trademark Office, a copy of which is attached to this decision.

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Claims 5, 6, 9, and 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Saito in view of Chen.

Reference is made to the Examiner's Answer (Paper No. 19, mailed June 16, 1998) for the examiner's complete reasoning in support of the rejections, and to appellant's Brief (Paper No. 18, filed March 4, 1998) and Reply Brief (Paper No. 21, filed August 17, 1998) for appellant's arguments thereagainst.

OPINION

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellant and the examiner. As a consequence of our review, we will reverse both the anticipation rejection of claims 1 through 4, 7, 8, and 11 through 14 and also the obviousness rejection of claims 5, 6, 9, and 10.

Regarding the anticipation rejection, independent claims 1 and 2 each recite, in pertinent part, four conductive films. Saito clearly discloses two conductive films, titanium-tungsten film 6 and aluminum alloy film 3.

The examiner maintains (Answer, pages 3, 5, and 7) that Saito's aluminum film can be considered four films of aluminum. Specifically, the examiner states (Answer, page 5) that "Saito's aluminum layer may be characterized as one, two, three, or four aluminum films ... because there are no structural details which distinguish one film from the others in appellant's claimed structure." The examiner further clarifies his position (Answer, page 7) wherein he explains, "An aluminum layer is nothing more than a mass of aluminum atoms having a particular shape. Since the atoms are typically deposited one-by-one on the surface of a structure (as they would be in Saito's sputtering technique) any subgroup of atoms could be called a layer."

Appellant argues (Brief, page 5) that the examiner's characterization of Saito's aluminum film as three or four distinct films is contrary to Saito's clear disclosure of a single layer of aluminum. Appellant further asserts (Reply Brief, page 3) that the examiner's characterization of an aluminum layer being "nothing more than a mass of aluminum atoms having a particular shape" is contrary to the definition of "layer."

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We agree with both of appellant's arguments. The skilled artisan would not consider the disclosure of a single layer of aluminum to cover multiple films, and the claims clearly require four distinct conductive layers. There is absolutely no basis in either Saito's or appellant's disclosure for the examiner's interpretation of the claimed layers. Thus, as Saito fails to disclose each and every element of the claims, we cannot sustain the anticipation rejection of claims 1 through 4, 7, 8, and 11 through 14.

Regarding the obviousness rejection of claims 5, 6, 9, and 10, Chen fails to cure the deficiencies of Saito discussed above. As the combination of Saito and Chen lacks elements of the claims, the examiner has failed to set forth a prima facie case of obviousness. Therefore, we cannot sustain the obviousness rejection of claims 5, 6, 9, and 10.

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CONCLUSION

The decision of the examiner rejecting claims 1 through 4, 7, 8, and 11 through 14 under 35 U.S.C. § 102(b) and claims 5, 6, 9, and 10 under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	
)	
)	BOARD OF PATENT
JOSEPH L. DIXON)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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ANITA PELLMAN GROSS)	
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